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*On a Formula giving the Expectation of Life approximatively.*  
 By CHARLES ARNOLD M. WILlich, *Actuary of the University Life Assurance Society.*

[Read before the Institute of Actuaries, 31st January, 1859, and ordered by the Council to be printed.]

DR. FARR, in the 12th Report of the Registrar-General, has given the value of annuities and the expectation of life, as deduced from the male English Life Table.

Observing a very uniform difference between the results thus obtained and those from the Carlisle Table of Mortality, it appeared to me probable that a simple hypothesis might be constructed which would produce a close approximation to the expectation of life between certain ages, but somewhat less favourable than the hypothesis\* I proposed in 1857 for the expectation of life according to the Carlisle Table of Mortality.

On a further investigation, I have found that, between the ages of 5 and 60, the following hypothesis will give a very close approximation to the expectation of life as calculated by Dr. Farr:—

$$\text{Let } a = \text{the age, then } \frac{2(80-a)}{3} = \text{expectation;}$$

or,  $\frac{2}{3}$  rds of the difference between the age and 80 = expectation.

*Table showing the Expectation of Life, from the age of 5 to 60 years of age.*

Age.	By Dr. Farr's English Life Table. Males.	By C. M. Willich's proposed Hypothesis.	Age.	By Dr. Farr's English Life Table. Males.	By C. M. Willich's proposed Hypothesis.
	Years.	Years.		Years.	Years.
5	50·21	50·00	18	41·35	41·33
6	49·89	49·33	19	40·67	40·66
7	49·39	48·66	20	39·99	40·00
8	48·81	48·00	21	39·31	39·33
9	48·16	47·33	22	38·63	38·66
10	47·47	46·66	23	37·96	38·00
11	46·73	46·00	24	37·28	37·33
12	45·95	45·33	25	36·60	36·66
13	45·17	44·66	26	35·92	36·00
14	44·38	44·00	27	35·24	35·33
15	43·62	43·33	28	34·57	34·66
16	42·84	42·66	29	33·89	34·00
17	42·08	42·00	30	33·21	33·33

\* See *Journal of the Institute of Actuaries*, page 181 of vol. vii. Expectation of life from the age of 5 to 60—*Carlisle Table of Mortality*:—

“Let  $a$  = the age, then  $\frac{2(81\frac{1}{2}-a)}{3}$  = expectation.”

*Table showing the Expectation of Life (continued).*

Age.	By Dr. Farr's English Life Table. Males.	By C. M. Willich's proposed Hypothesis.	Age.	By Dr. Farr's English Life Table. Males.	By C. M. Willich's proposed Hypothesis.
	Years.	Years.		Years.	Years.
31	32·53	32·66	46	22·48	22·66
32	31·85	32·00	47	21·82	22·00
33	31·17	31·33	48	21·17	21·33
34	30·50	30·66	49	20·52	20·66
35	29·82	30·00	50	19·87	20·00
36	29·15	29·33	51	19·22	19·33
37	28·47	28·66	52	18·58	18·66
38	27·80	28·00	53	17·94	18·00
39	27·13	27·33	54	17·30	17·33
40	26·46	26·66	55	16·66	16·66
41	25·79	26·00	56	16·02	16·00
42	25·12	25·33	57	15·39	15·33
43	24·46	24·66	58	14·77	14·66
44	23·79	24·00	59	14·18	14·00
45	23·13	23·33	60	13·60	13·33

*A Chapter in Fire Insurance : "Specific" and "Average." By*  
*THOMAS MILLER, of the Scottish Union Assurance Society.*

[Read before the Institute of Actuaries, 28th February, 1859, and ordered by the Council to be printed.]

ACCORDING to present practice, when property is insured, both by average and by specific policies, the latter have to bear the whole of any loss which may occur, unless it exceed the total amounts which they insure; and, in that case, the excess of loss over the amounts they insure is covered by the average policies, and is subject to average at the settlement of the claim.

As it may be deemed advisable by the Offices, at some future period, to make average and specific policies bear proportionate shares of loss on property jointly insured by them, it is proposed to determine the rules by which their respective proportions may be ascertained.

All policies, whether specific or average, contain a condition to the effect that Offices insuring the same property shall be liable to make good rateable proportions of loss—that is, they are bound to bear shares of loss proportioned to the relative amounts insured; and the legislature has enacted, that a person's loss is the utmost amount he can legally recover under the insurance. With these